

Service Manual

PIONEER



STEREO TURNTABLE

PL-400 ^S_{S/G}

For descriptions and adjustment methods of the D.D. motor and the mechanism employed in this model, refer to the Supplementary Service Manual (ART-467) for the PL-200, PL-255, PL-300, and PL-400 models.

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<ART-464-0>

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1. SPECIFICATIONS

Motor and Turntable

Drive System	Direct-drive
Motor	Quartz PLL Hall motor
Turntable Platter	310mm diam. aluminum alloy die-cast
Moment of Inertia	180kg-cm ² (including platter mat)
Speeds	33-1/3 and 45rpm
Wow and Flutter	Less than 0.025% (WRMS)
Signal-to-Noise Ratio	More than 75dB (DIN-B)
	(with Pioneer cartridge model PC-150)

Rotational Characteristics

Build-up Time	Within 120° rotation at 33-1/3rpm
Speed Deviation	Less than 0.002%
Speed Drift	Less than 0.00008%/h at 33-1/3rpm
	Less than 0.00003%/degree temp. change at 33-1/3rpm

Tonearm

Type	Static-balance type, S-shaped pipe arm
Effective Arm Length	221mm
Overhang	15.5mm
Usable Cartridge Weight	4g (min.) to 9g (max.)

Subfunctions

Full auto mechanism, Anti-skating force control, Stylus pressure direct-readout counterweight, Cueing device, Strobe light, Free stop hinges

Semiconductors

ICs	3
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Transistors	3
Diodes	6
Hall Elements	3

Miscellaneous

Power Requirements:

AC110-120/220-240V ~ (switchable),
50, 60Hz

Power Consumption8W

Dimensions420(W) x 96(H) x 365(D)mm
16-1/2(W) x 3-13/16(H) x 14-3/8(D)in.

Weight6.5kg/14 lb 5 oz.

PC-150 Specifications

Type	Moving magnet type
Stylus	0.5 mil diamond (PN-150)
Output Voltage	3.5mV (1kHz, 50mm/s LAT)
Tracking Force	1.7g to 2.5g (proper 2.2g)
Frequency Response	15 to 30,000Hz
Recommended Load	50kΩ +170 ~ 300pF

Accessories

EP Adapter	1
Operating Instructions (French and German furnished on model for WE)	1

NOTE:

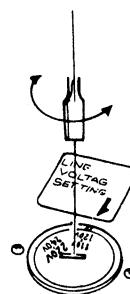
Specifications and design subject to possible modification without notice, due to improvements.

LINE VOLTAGE SELECTOR SWITCH

The line voltage selector switch is located on the top surface of the cabinet of this turntable. Before your turntable is shipped from the factory, the switch is set to the power requirements of the turntable's destination, check that it is set properly before plugging the power cord into the outlet. If the voltage is not properly set or if you move to an area where the voltage requirements differ, adjust the selector switch as follows:

1. Disconnect the power cord.
2. Provide yourself with a medium-sized screwdriver. Insert the tip of the screwdriver into the groove of the selector switch and turn it so that the power voltage marking of your area points to the white mark by the arrow on the label.

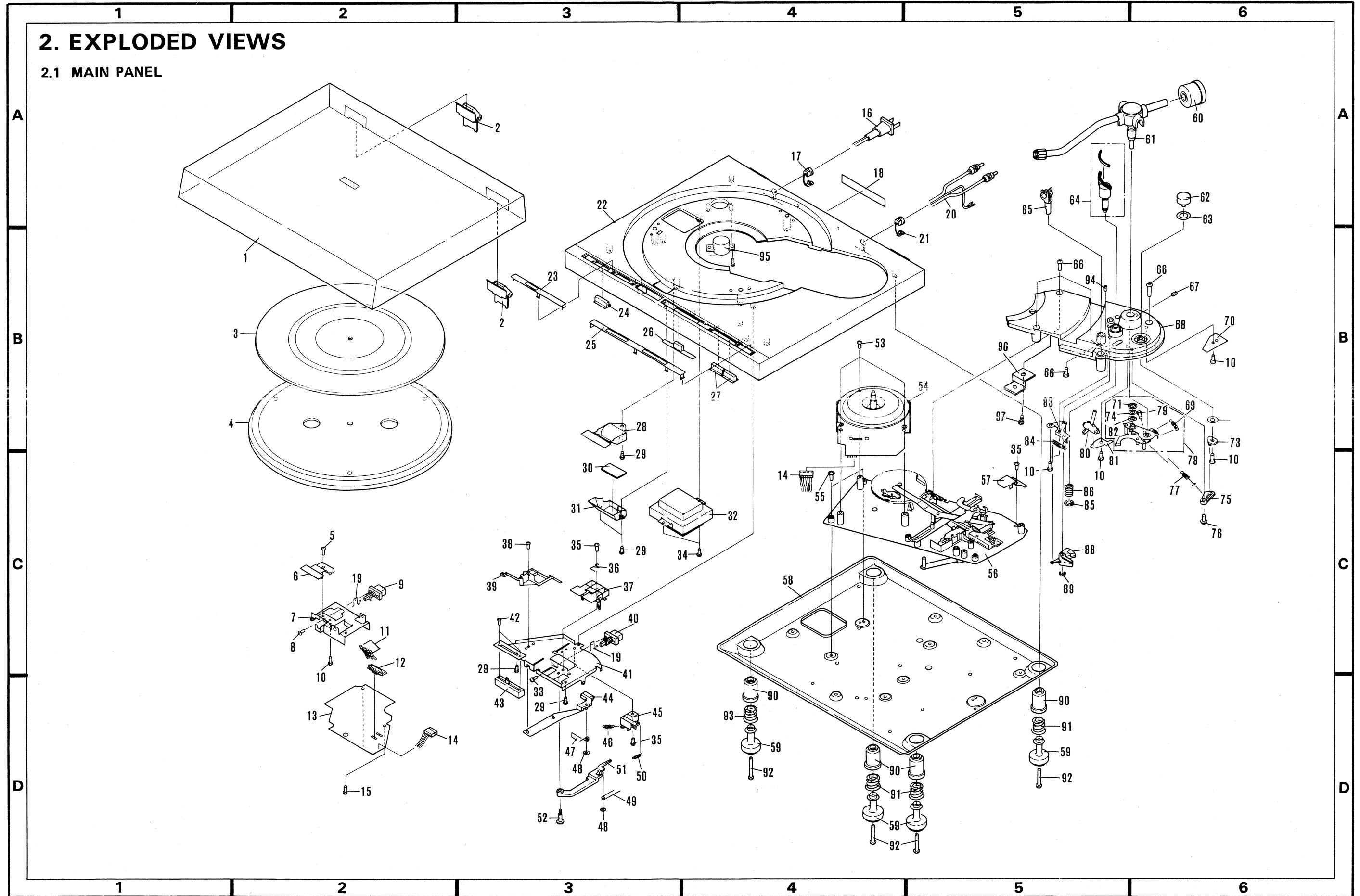
Screwdriver



S and S/G model

2. EXPLODED VIEWS

2.1 MAIN PANEL



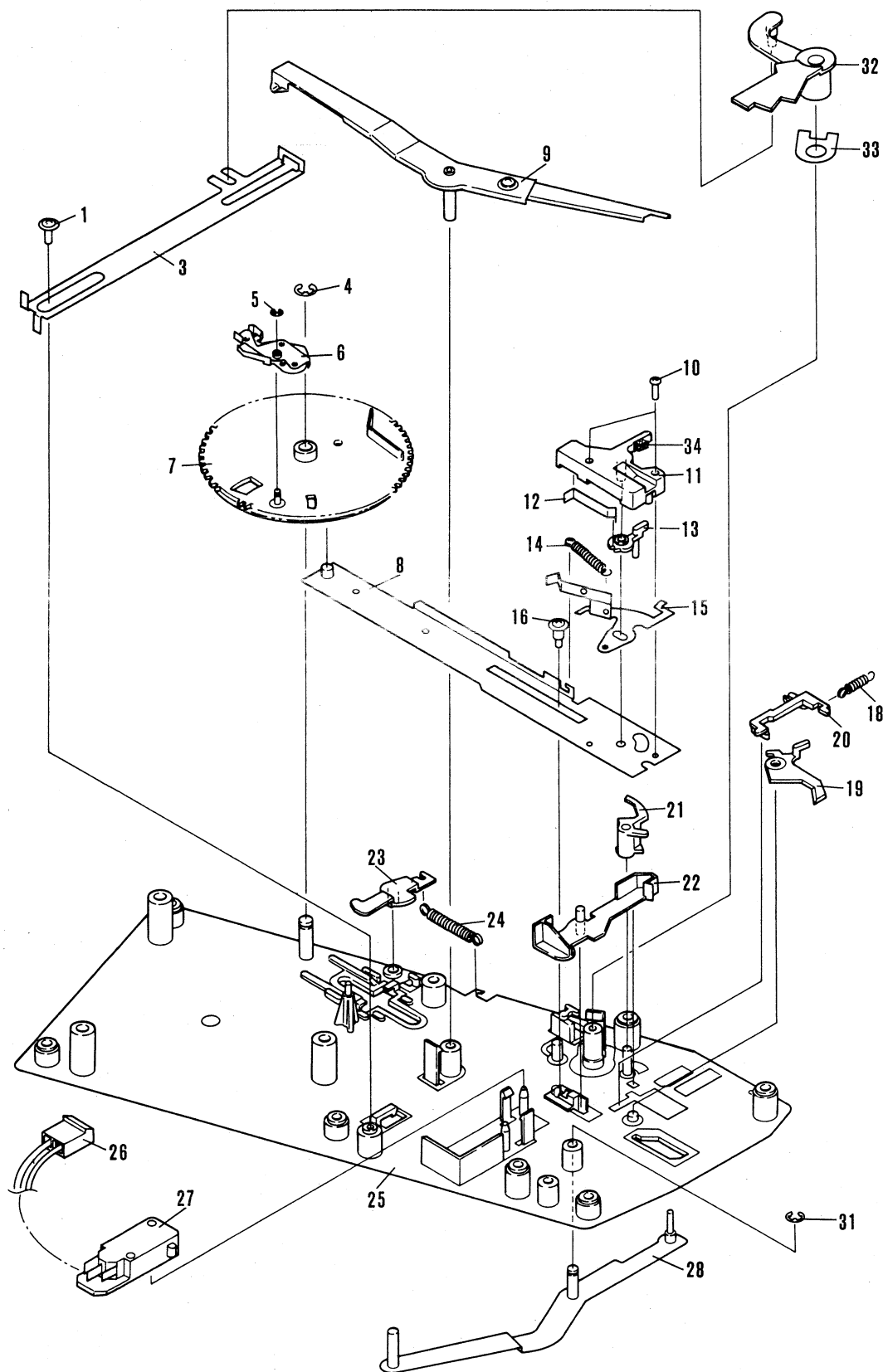
Parts List of Main Panel

NOTE:

- Parts without part number cannot be supplied.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

Key No.	Part No.	Description	Key No.	Part No.	Description
1.	PNV-034	Dust cover	51.	PNX-069	Lever B
2.	PXB-155	Hinge assembly	52.	PBA-102	Shaft
3.	PEB-150	Rubber mat assembly	53.	PBA-108	Brazier deltite screw 3 x 25
4.	PNR-115	Turntable platter	54.	PXM-075	Motor
5.		Deltite screw 3 x 8	55.	PBA-109	Deltite screw (in flat washer) 3 x 17
6.		Button guide C	56.		Sub panel assembly
7.		Angle	57.		Protector
8.		Semes A screw 3 x 5	58.		base
9.	PSG-020	Push switch	59.	PNX-062	Foot case
10.		Taptite P screw 3 x 8	60.	PXB-092	Weight assembly
11.	BR5504S	LED	61.	PPD-591	Arm assembly
12.		LED base	62.	PAC-045	AS knob
Δ 13.		Power supply assembly	63.	PBF-005	AS washer
14.	PDE-062	Connector assembly	64.	PXB-107	EV sheet assembly
15.		Taptite P screw 3 x 8	65.	PXB-094	Arm rest assembly
Δ 16.	PDG-004	AC power cord	66.	PBA-108	Brazier deltite screw 3 x 25
17.	REC-058	Strain relief	67.		Hexagon socket headless set screw 4 x 8
18.		Label	68.	PNX-053	Arm base
19.	PBH-261	Spring	69.	PBH-244	Spring
20.	PDE-044	OUTPUT cord	70.		OUTPUT terminal
21.	PEC-056	Strain relief	71.		CS type washer CSTW-4SUS
22.	PNX-122	Panel	72.	PBE-012	Washer
23.	PAM-062	Name plate	73.	PNX-054	AS adjusting plate
24.	PAC-043	Push button	74.		Flat washer 4
25.	PAM-063	Name plate	75.	PNX-055	Lever
26.	PAC-046	Knob	76.		Washer faced taptite P screw 3 x 10
27.	PAC-043	Push button	77.	PBH-236	Spring
28.	PNX-082	Lens	78.	PXB-097	PU plate assembly
29.		Taptite P screw 3 x 8	79.		Pan head screw 4 x 8
30.		Mirror	80.	PXT-382	Lever
31.		Lens holder	81.	PBK-042	Plate spring A
Δ 32.	PTT-087	Power transformer	82.	PNB-405	PU washer
33.		Semes A screw 3 x 5	83.	PXT-385	Plate spring B
34.		Taptite P screw 4 x 10	84.	PBH-238	EV cam spring
35.		Deltite screw 3 x 8	85.		E type washer 7
36.	PBH-260	Spring	86.	PBH-237	Spring
37.	PNX-076	Button guide B	87.		-----
38.		-----	88.	PNX-059	Cam
39.	PNX-071	Guide	89.		E type washer 3
40.	PSG-018	Push switch	90.	PEB-163	Rubber cushion
41.		Control base	91.	PBH-241	Foot spring B
42.		Pan head screw 2.6 x 5	92.	PBA-099	Screw
43.	PCS-017	Volume	93.	PBH-240	Foot spring A
44.	PNX-072	Slider	94.		Hexagon socket headless set screw 3 x 12
45.	PNX-070	Lever	Δ 95.	PSB-006	Line voltage selector
46.	PBH-245	Spring A	96.		Holder
47.	PBH-248	Spring	97.		Taptito B screw screw 3x12
48.		Push nut 3 ϕ			
49.	PBH-247	Operating spring A			
50.	PBH-246	Spring B.			

2.2 SUB PANEL

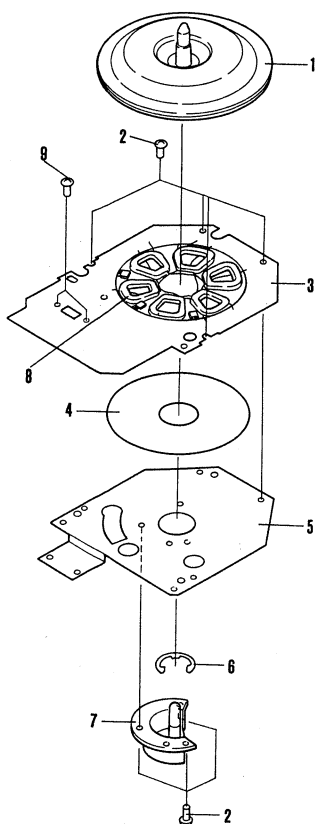


Parts List of Sub Panel

Key No.	Part No.	Description
1.		Washer faced taptite P screw 3 x 10
2.		-----
3.	PNC-103	Lever
4.		E type washer 4
5.		E type washer 1.5
6.	PYY-058	Return signal unit
7.	PNX-036	Cam
8.	PXT-356	Plate
9.	PXT-390	Detector lever
10.		Pan head screw 2.6 x 10
11.	PNX-033	EV cam
12.	PBK-038	Plate spring
13.	PNX-032	Cam
14.	PBH-224	Spring
15.	PXT-357	START unit
16.	PBA-103	Screw
17.		
18.	PBH-223	Spring
19.	PNX-028	Plate
20.	PNX-029	Selector

Key No.	Part No.	Description
21.	PNX-031	Switch plate
22.	PNX-030	Switch lever
23.	PNX-035	Plate
24.	PBH-225	Spring
25.		Sub panel unit
△ 26.	PDE-070	Connector assembly
△ 27.	PSF-009	Microswitch
28.	PXT-388	START lever unit
29.		-----
30.		-----
31.		E type washer 3
32.	PNX-034	Cam
33.	PBK-039	Washer
34.	PEC-064	EV cam cushion

2.3 D.D. MOTOR



Key No.	Part No.	Description
1.		Rotor unit
2.		Taptite screw 3x5
3.		Control assembly
4.		Insulator
5.		Base unit
6.		EW12
7.		Shaft holder
8.		Coil
9.		Taptite screw 3x12

3. SCHEMATIC DIAGRAM AND PARTS LIST

NOTE:

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω — 56 × 10¹ — 561 RD¼PS 561 J
 47kΩ — 47 × 10³ — 473 RD¼PS 473 J
 0.5Ω — 0R5 RN2H 0R5 K
 1Ω — 010 RS1P 010 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562 × 10¹ 5621 RN¼SR 562 F

- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

Parts List of D.D. motor (PXM-075)

CAPACITORS

Part No.	Symbol & Description
CEA 101M 6,3NP	C1
CKDYF 403Z 50	C2
CKDYB 681K 50	C3
CQMA 104J 50	C4
CSZA R47K 35	C5
CKDYF 103Z 50	C6, C13, C16—C18
CQMA 104K 50	C7, C20
CEA 010P 50	C8
CEA 100P 16	C9
CEA 471P 25	C10—C12
CCDCH 330J 50	C14
CCDCH 560J 50	C15
CEA 100P 25	C19

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

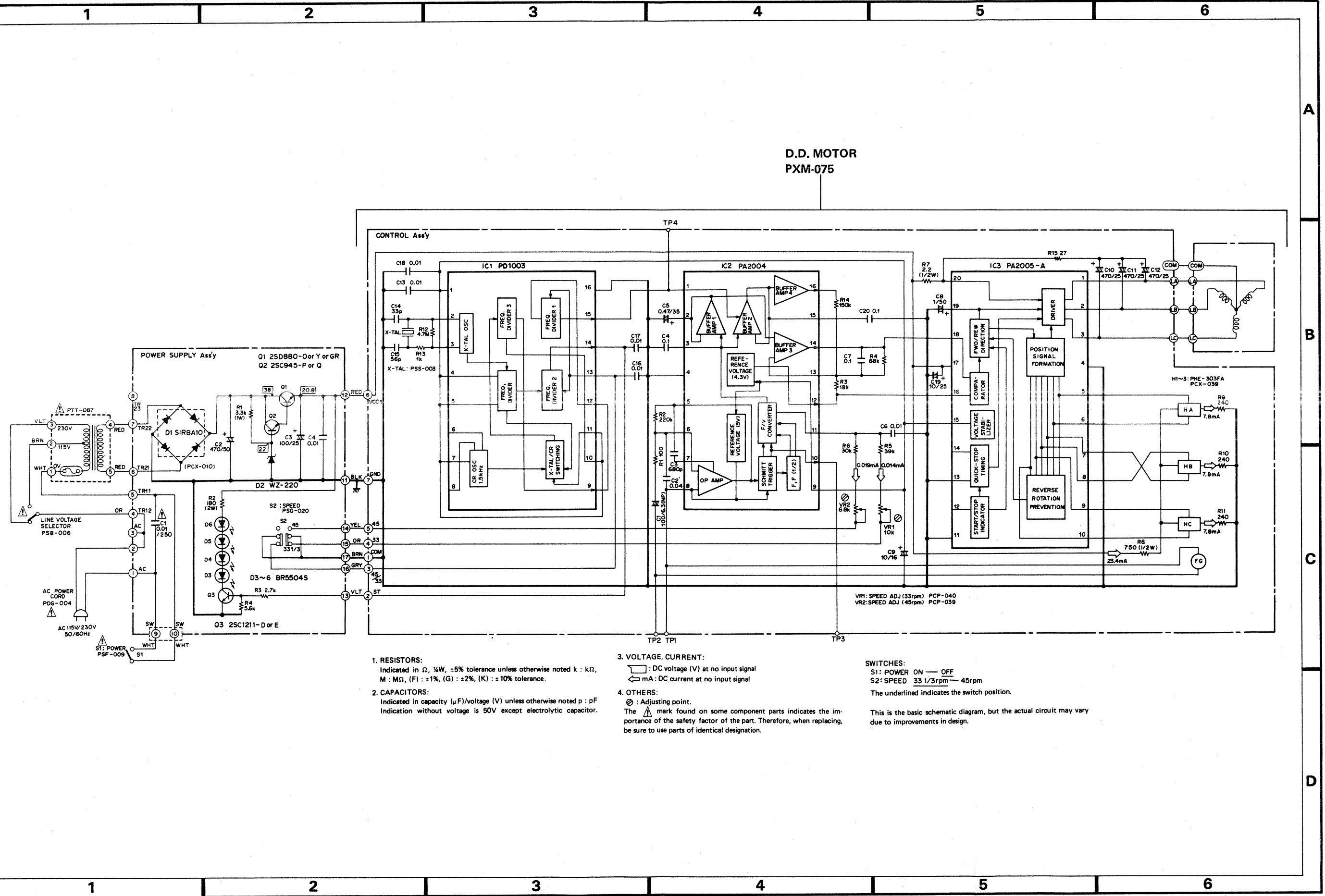
Part No.	Symbol & Description
RD¼PS □□□J	R1—R6, R9—R15
RD½PS □□□J	R7, R8
PCP-040	VR1 (10k-B)
PCP-039	VR2 (6.8k-B)

SEMICONDUCTORS AND OTHERS

Part No.	Symbol & Description
PD1003	IC1
PA2004	IC2
PA2005A	IC3
PHE-303FA	H1—H3 Hall element
PSS-003	Crystal

Parts List of Power Supply Assembly

Part No.	Symbol & Description
2SD880	Q1
2SC945	Q2
2SC1211	Q3
PCX-010	D1
WZ-220	D2
BR5504S	D3—D6
CKDYF 103Z 50	C4
CEA 471M 50L	C2
CEA 101M 25L	C3
Δ PCL-032	C1
RD¼PS 272J	R3
RS2PF 181J	R2
RS1PF 332J	R1
RD¼PS 562J	R4
PSG-020	S2 Speed selector
PDE-062	Connector assembly
PNX-015	Insulator
PBH-261	Push button spring



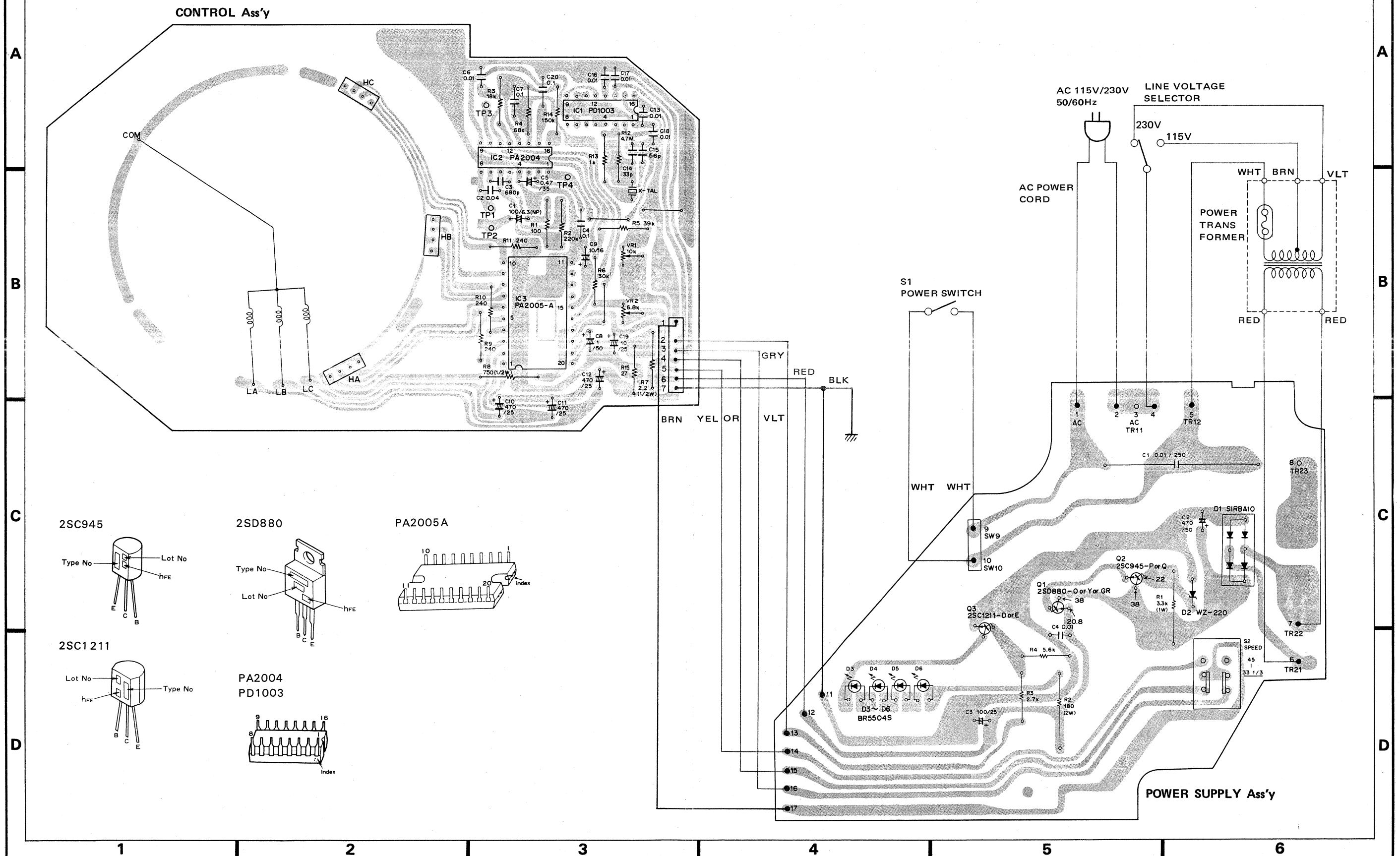
1. RESISTORS:
Indicated in Ω , $\frac{1}{4}W$, $\pm 5\%$ tolerance unless otherwise noted k : k Ω , M : M Ω , (F) : $\pm 1\%$, (G) : $\pm 2\%$, (K) : $\pm 10\%$ tolerance.
2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
□ : DC voltage (V) at no input signal
◁ : mA : DC current at no input signal
4. OTHERS:
⊗ : Adjusting point.
The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

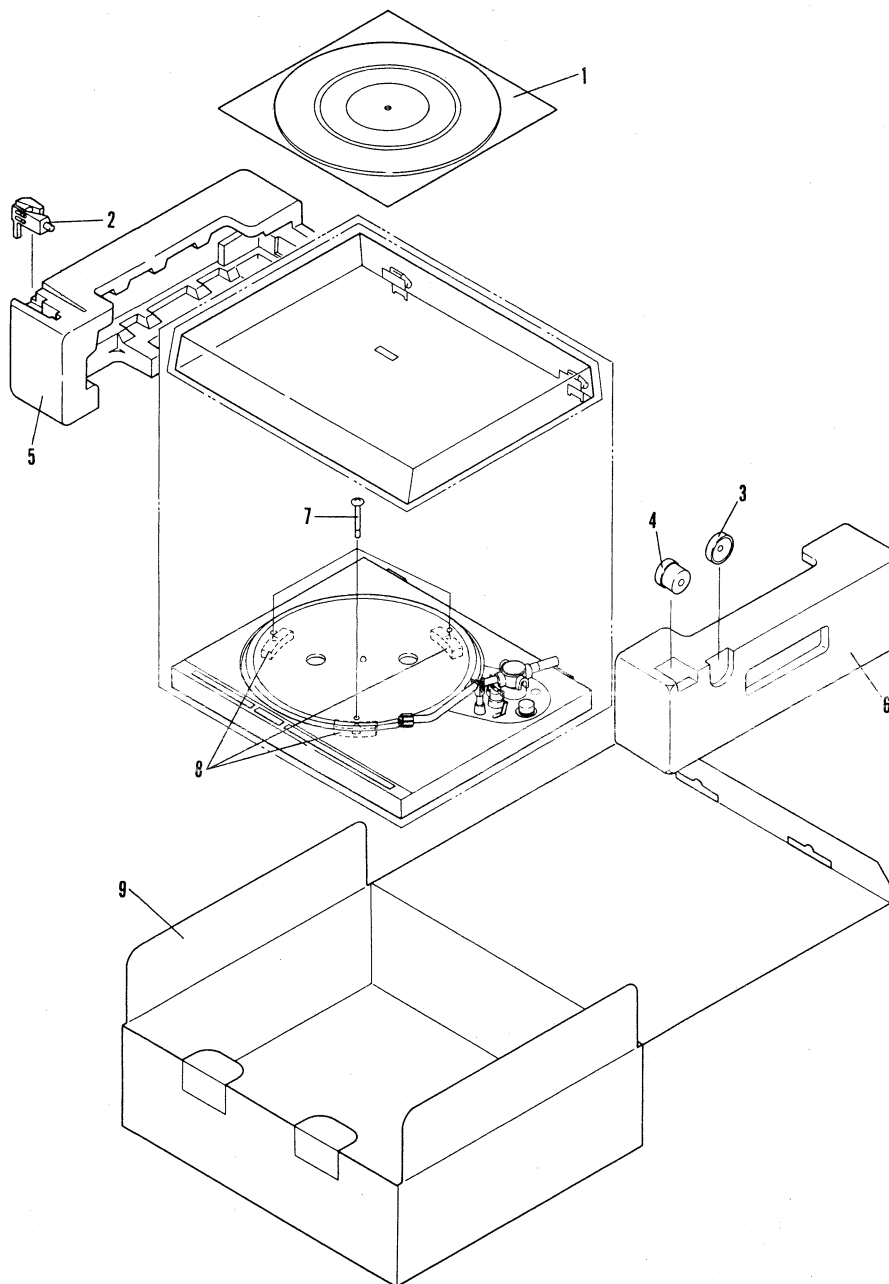
- SWITCHES:
S1: POWER ON — OFF
S2: SPEED 33 1/3rpm — 45rpm
The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

4. P.C.BOARD CONNECTION DIAGRAM



5. PACKING



Parts List

Key No.	Part No.	Description
1.	PEB-150	Rubber mat assembly
2.	PXA-792	Headshell assembly
	PXT-967	Cartridge assembly
	PBA-905	Cartridge mounting screw
3.	N93-603	45 adaptor

Key No.	Part No.	Description
4.	PXB-092	Weight assembly
5.	PHA-107	Side protector L
6.	PHA-108	Side protector R
7.	PBA-100	Screw
8.	PNX-064	Turntable protector
9.	PHG-393 (S)	Packing case
	PHG-368 (S/G)	
	PRB-133	Operating instructions
	H56-603	Vinyl bag